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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|------------------------|------------------|
| 09/687,053 | 10/12/2000 | H. Peter W. Hey | 260IP7 / ISM/COPPER/SB | 1116 |

7590 04/11/2002

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[REDACTED] EXAMINER

VALENTINE, DONALD R

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 1741 | 5 |

DATE MAILED: 04/11/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

T-D-5

| | | |
|------------------------------|------------------|----------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/687,053 | HEY, et al. |
| | Examiner | Group Art Unit |
| | DONALD VALENTINE | 1741 |

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- Responsive to communication(s) filed on _____
- This action is FINAL.
- Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- Claim(s) 1 - 25 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- Claim(s) 25 is/are allowed.
- Claim(s) 1 - 9, 11-15, 17-21, 24 is/are rejected.
- Claim(s) 10, 16, 22, 23 is/are objected to.
- Claim(s) _____ are subject to restriction or election requirement

Application Papers

- The proposed drawing correction, filed on _____ is approved disapproved.
- The drawing(s) filed on _____ is/are objected to by the Examiner
- The specification is objected to by the Examiner.
- The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- All Some* None of the:
 - Certified copies of the priority documents have been received.
 - Certified copies of the priority documents have been received in Application No. _____.
 - Copies of the certified copies of the priority documents have been received
in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- Information Disclosure Statement(s), PTO-1449, Paper No(s). 3, 4 Interview Summary, PTO-413
- Notice of Reference(s) Cited, PTO-892 Notice of Informal Patent Application, PTO-152
- Notice of Draftsperson's Patent Drawing Review, PTO-948 Other _____

Office Action Summary

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

1. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-3, 7-9, 11-15, 17-21 and 24 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Moore.

See Figures 1-3; col. 2, lines 6-19; and col. 3, lines 5-59. The wafer support is being considered as equivalent to applicants' "substrate holder".

If not shown by the reference then the claims would be considered to obvious modification of the reference because the reference appears to be concerned with plating uniformity (col. 2, lines 15-20) and also appears to disclose a method wherein a determination of the depth of the deposited film is provided (col. 3, lines 22-59).

2. Claims 1, 3, 18-19 and 21 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wong.

See Figure 4 in which item 34 is being considered as an "actuator" which appears to adjust the substrate relative to the electrolyte cell. The reference does not support a substrate with a metal seed layer.

It would be considered within the skill of the art to support such a substrate in the apparatus of the reference because some metal substrates require a thin flash coat (seed layer) for providing metal adhesion prior to electroplating. (E.g., a nickel flash prior to copper plating).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims ⁴~~2~~6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

BS

Art Unit: 1741

These claims appear to provide method limitations in apparatus claims in which the claims do not recite means plus function of the means. E.g., "sensor for sensing electric current" and/or "deposition portion for providing deposition of the metal film".

Allowable Subject Matter

5. Claim 25 is allowed.
6. Claims 10, 16 and 22-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
7. ⁴ Claims ~~2-6~~ would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
8. The following is a statement of reasons for the indication of allowable subject matter: The references of record do not show or suggest method and apparatus with a substrate holder for holding a substrate having a metal seed layer in an electrolytic cell, said holder having an actuator connected thereto for adjustably positioning the substrate relative to the cell and said apparatus cell having a body portion and overflow portion which defines an opening for receiving the substrate in its processing position, and the method and apparatus comprising a sensor that is adapted to sense the current density across the seed layer.

ABV

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bassous et al and Grandia et al show, respectively, an adjustable substrate holder and apparatus for providing uniform current density.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald R. Valentine whose telephone number is 703-308-3327. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowsky can be reached on 703-308-4333. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

drv
April 9, 2002

Donald R. Valentine
DONALD R. VALENTINE
PRIMARY EXAMINER
GROUP 14391741